Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-12 (cancelled)

13. (original) An isolated oligonucleotide designed for detecting a polymorphism in the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene at a polymorphic site (PS) selected from the group consisting of PS1, PS4, PS12, PS14, PS15, PS17 and PS18, wherein the selected PS have the position and alternative alleles shown in SEQ ID NO:1.

14. (original) The isolated oligonucleotide of claim 13, which is an allele-specific oligonucleotide that specifically hybridizes to an allele of the TNFRSF1A gene at a region containing the polymorphic site.

15. (original) The allele-specific oligonucleotide of claim 14, which comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS:4-10, the complements of SEQ ID NOS:4-10, and SEQ ID NOS:11-24.

16. (original) The isolated oligonucleotide of claim 13, which is a primer-extension oligonucleotide.

17. (original) The primer-extension oligonucleotide of claim 16,which comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS:25-38.

18. (original) A kit for haplotyping or genotyping the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene of an individual, which comprises a set of oligonucleotides designed to haplotype or genotype each of polymorphic sites (PS) PS1, PS4, PS12, PS14, PS15, PS17 and PS18, wherein the selected PS have the position and alternative alleles shown in SEQ ID NO:1.

19. (original) The kit of claim 18, which further comprises oligonucleotides designed to genotype each of PS2, PS3, PS5, PS6, PS7, PS8, PS9, PS10, PS11, PS13 and PS16, having the location and alternative alleles shown in SEQ ID NO:1.

20. (currently amended) An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:

(a) a first nucleotide sequence which comprises a tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) isogene encoding a TNFRSF1A polypeptide with a domain capable of binding TNFα, wherein the TNFRSF1A isogene comprises nucleotides 2920-4210, 11417-12926, and 14634-16768 of a sequence selected from SEQ ID NOS:42-62, 64-68~~SEQ ID NO:1 except the sequence is substituted by the combination of nucleotides at polymorphic sites 1 to 18 (PS1-PS18) defined by a TNFRSF1A haplotype selected from the group consisting of TNFRSF1A haplotypes 1-27 shown in Table 5, wherein the nucleotide positions of PS1-PS18 in SEQ ID NO:1 and the~~

~~alleles at each of PS1-PS18 for each TNFRSF1A haplotype in the group are set forth in Table 5~~; and

(b) a second nucleotide sequence which is complementary to the first nucleotide sequence.

21. (original) The isolated polynucleotide of claim 20, which is a DNA molecule and comprises both the first and second nucleotide sequences and further comprises expression regulatory elements operably linked to the first nucleotide sequence.

22.-23 (cancelled)

24. (previously amended) An isolated fragment of a tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) isogene, wherein the fragment comprises at least 15 nucleotides in one of the regions of SEQ ID NO:1 selected from nucleotides 2920-4210, 11417-12926, or 14634-16768 and wherein the fragment comprises one or more polymorphisms selected from the group consisting of thymine at PS1, guanine at PS4, adenine at PS12, thymine at PS14, thymine at PS15, adenine at PS17 and adenine at PS18, wherein the nucleotide positions in SEQ ID NO:1 of the polymorphisms are 3102 for PS1, 3603 for PS4, 14824 for PS12, 15089 for PS14, 15093 for PS15, 15932 for PS17 and 16165 for PS18.

25. (currently amended) An isolated polynucleotide comprising a TNFRSF1A coding sequence, wherein the coding sequence comprises SEQ ID NO:2, except for being substituted with a variant base selected from the group consisting of a thymine at position 224; an adenine at position 362; a cytosine at position 403; and an adenine at position 935.

26.-27. (cancelled)

28. (currently amended) An isolated fragment of a TNFRSF1A cDNA, wherein the fragment comprises at least 15 nucleotides of SEQ ID NO:2 and a polymorphism selected from the group consisting of adenine at a position corresponding to nucleotide 935 in SEQ ID NO:2, thymine at position 224 in SEQ ID NO:2, adenine at position 362 in SEQ ID NO:2, and cytosine at position 403 in SEQ ID NO:2.

29.-33. (cancelled)

34. (currently amended) A genome anthology for the tumor necrosis factor receptor superfamily, member 1A (TNFRSF1A) gene which comprises two or more TNFRSF1A isogenes ~~selected from the group consisting of isogenes 1-27 shown in the table immediately below~~, wherein each selected isogene encodes a TNFRSF1A polypeptide with a domain capable of binding TNFα and wherein each of the selected isogenes comprises ~~the regions~~ nucleotides 2920-4210, 11417-12926, and 14634-16768 of a sequence selected from SEQ ID NOS:42-68. ~~SEQ ID NO:1 shown in the table immediately below and wherein each of the isogenes 1-27 is further defined by the corresponding sequence of polymorphisms whose positions and identities are set forth in the table immediately below:~~

ISOGENE NUMBERa										PSb	PS	SEQ ID	REGION
1	2	3	4	5	6	7	8	9	10	NUMBER	POSITIONc	NO.	EXAMINEDd
G	G	G	G	G	G	G	G	G	G	1	3102	1	2920-4210
G	G	G	G	G	G	G	G	G	G	2	3409	1	2920-4210
A	A	A	A	A	A	A	A	A	A	3	3438	1	2920-4210
C	C	C	C	C	C	C	C	C	C	4	3603	1	2920-4210
A	A	A	A	A	A	A	G	G	G	5	4054	1	2920-4210
G	G	G	G	G	G	G	G	G	G	6	4082	1	2920-4210
C	C	C	C	C	C	C	C	C	C	7	11998	1	11417-12926
G	G	G	G	G	G	G	A	G	G	8	12356	1	11417-12926
T	T	T	T	T	T	T	T	C	T	9	12397	1	11417-12926
C	C	C	C	C	C	C	C	C	C	10	12489	1	11417-12926
C	C	C	C	C	C	C	C	C	C	11	12653	1	11417-12926
A	G	G	G	G	G	G	G	G	G	12	14824	1	14634-16768
A	A	A	A	A	G	G	G	A	A	13	14990	1	14634-16768
C	C	C	C	T	C	C	C	C	C	14	15089	1	14634-16768
C	C	C	T	C	C	C	C	C	C	15	15093	1	14634-16768
C	C	T	C	C	C	T	T	T	C	16	15529	1	14634-16768
G	G	G	G	G	G	G	G	G	G	17	15932	1	14634-16768
G	G	G	G	G	G	G	G	G	G	18	16165	1	14634-16768

ISOGENE NUMBERa										PSb	PS	SEQ ID	REGION
11	12	13	14	15	16	17	18	19	20	NUMBER	POSITIONc	NO.	EXAMINEDd
G	G	G	G	G	G	G	G	G	G	1	3102	1	2920-4210
G	G	G	G	G	G	G	T	T	T	2	3409	1	2920-4210
A	A	A	A	G	G	G	A	A	A	3	3438	1	2920-4210
C	C	C	C	C	C	C	C	C	C	4	3603	1	2920-4210
G	G	G	G	A	A	A	A	A	A	5	4054	1	2920-4210
G	G	G	G	G	G	G	A	G	G	6	4082	1	2920-4210
C	C	C	T	C	C	T	C	C	C	7	11998	1	11417-12926
G	G	G	G	G	G	G	G	G	G	8	12356	1	11417-12926
T	T	T	T	T	T	T	T	T	T	9	12397	1	11417-12926
C	C	C	C	C	C	C	C	C	C	10	12489	1	11417-12926
C	C	T	C	C	C	C	T	C	C	11	12653	1	11417-12926
G	G	G	G	G	G	G	G	G	G	12	14824	1	14634-16768
A	G	A	G	A	A	A	A	A	G	13	14990	1	14634-16768
C	C	C	C	C	C	C	C	C	C	14	15089	1	14634-16768
C	C	C	C	C	C	C	C	C	C	15	15093	1	14634-16768
T	T	T	T	C	T	C	T	T	T	16	15529	1	14634-16768
G	G	G	G	G	G	G	G	A	G	17	15932	1	14634-16768
G	G	G	G	G	G	G	G	G	G	18	16165	1	14634-16768

ISOGENE NUMBERa							PSb	PS	SEQ ID	REGION
21	22	23	24	25	26	27	NUMBER	POSITIONc	NO.	EXAMINEDd
G	G	G	G	G	G	T	1	3102	1	2920-4210
T	T	T	T	T	T	C	2	3409	1	2920-4210
A	A	A	A	A	G	G	3	3438	1	2920-4210
C	C	C	C	G	C	C	4	3603	1	2920-4210
A	A	A	G	A	A	A	5	4054	1	2920-4210
G	G	G	G	G	G	G	6	4082	1	2920-4210
C	C	C	C	C	C	C	7	11998	1	11417-12926
G	G	G	G	G	G	G	8	12356	1	11417-12926
T	T	T	T	T	T	T	9	12397	1	11417-12926
C	C	T	C	C	C	C	10	12489	1	11417-12926
T	T	T	T	T	C	C	11	12653	1	11417-12926
G	G	G	G	G	G	G	12	14824	1	14634-16768
A	A	A	A	A	A	A	13	14990	1	14634-16768
C	C	C	C	C	C	C	14	15089	1	14634-16768
C	C	C	C	C	C	C	15	15093	1	14634-16768
C	T	T	T	T	C	T	16	15529	1	14634-16768
G	G	G	G	G	G	G	17	15932	1	14634-16768
G	G	G	G	G	G	A	18	16165	1	14634-16768

aAlleles for isogenes are presented 5′ to 3′ in each column; bPS = polymorphic site; cPosition of PS in SEQ ID NO:1; dRegion examined represents the nucleotide positions defining the start and stop positions within SEQ ID NO:1 of the sequenced region.

35. (previously added) The isolated polynucleotide of claim 20, wherein the isogene encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 and wherein the isogene is selected from the group consisting of isogenes 1,2,3,4,5,6,7,10,11,12,13,15,16,18,20, 21,22, 23,24,25,26 and 27.

36. (previously added) The isolated polynucleotide of claim 20, wherein the isogene is isogene 19, encoding a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a lysine at amino acid position 312.

37. (previously added) The isolated polynucleotide of claim 20, wherein the isogene is isogene 8 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a glutamine at amino acid position 121.

38. (previously added) The isolated polynucleotide of claim 20, wherein the isogene is isogene 9 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a histidine at amino acid position 135.

39. (previously added) The isolated polynucleotide of claim 20, wherein the isogene is selected from isogenes 14 and 17 and encodes a TNFRSF1A polypeptide identical to SEQ ID NO:3 except for having a leucine at amino acid position 75.

Amendments to the Sequence Listing

A Substitute Sequence Listing is attached hereto in paper form. The substitute sequence listing includes a separate sequence for each TNFRSF1A isogene defined by a haplotype represented in Table 5 in the specification (pp. 39-40). A computer readable form on diskette of the Substitute Sequence Listing is also included herewith.